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APRIL, 1927

American Cinematographer

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By American Society
of Cinematographers

SPRING IN THE MOUNTAINS

A vista from Timberline Ridge with Mount Adams beyond in Ranier National Park country.

Blossoms in the foreground are those of "squaw grass." Reproduced from location Library of American Society of Cinema-tograpers, Hollywood.

A. S. C. Officers for 1927-28 Elected; A Professional's Notes for Amatuers (Part VI)—By Joseph A. Dubray, A. S. C.; Motion Picture Club of the Oranges.

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Vol. VIII APRIL, 1927 No. 1

American Cinematographer

FOSTER GOSS, *Editor and General Manager*

Contents:

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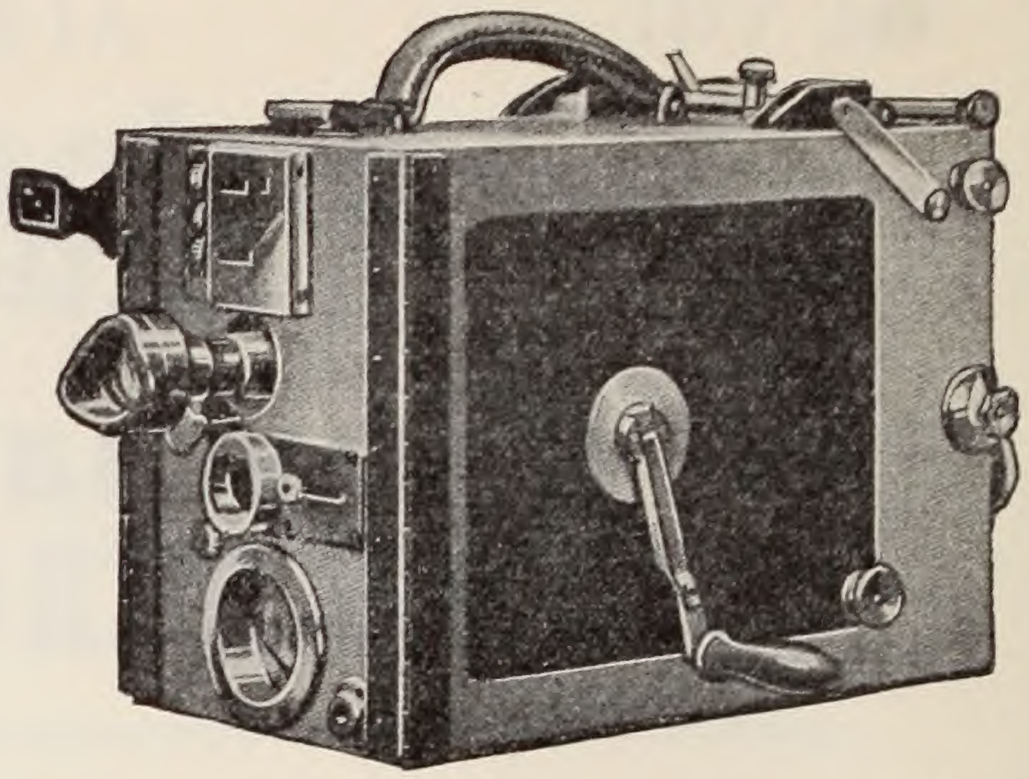

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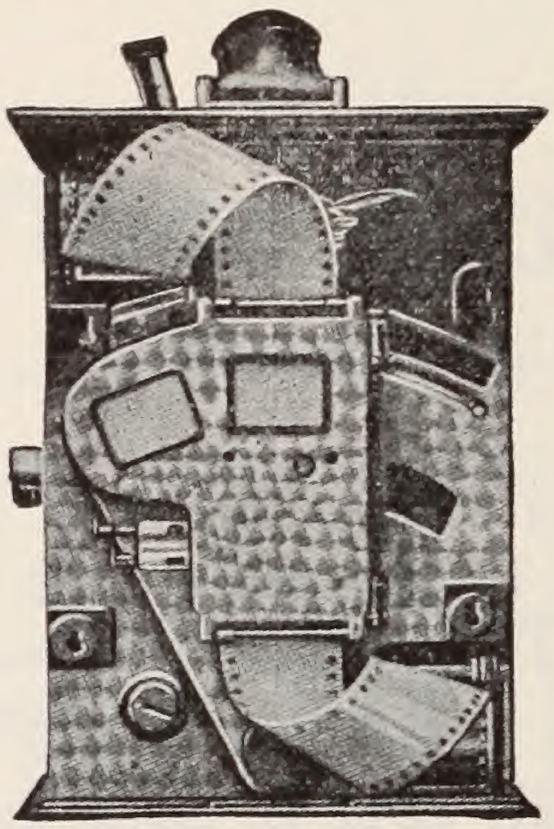
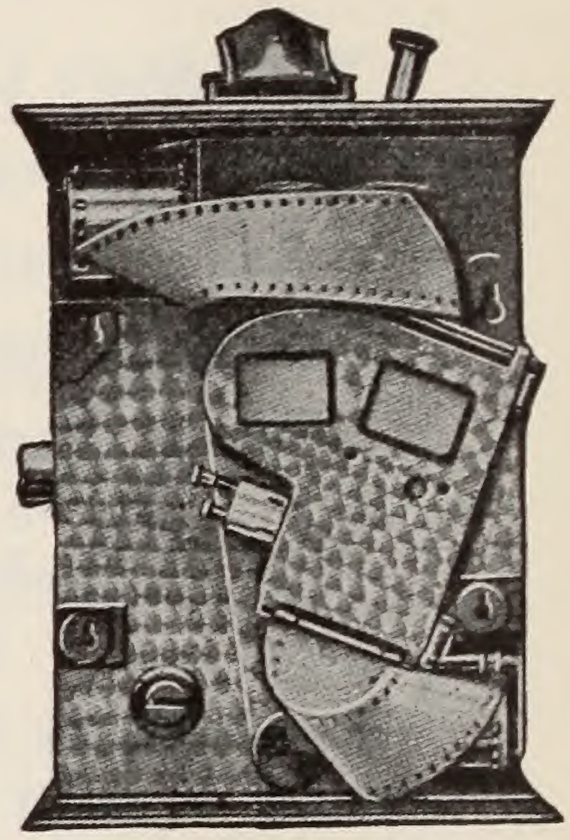


POSITION DURING EXPOSURE



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The EDITOR'S LENS focused by FOSTER GOSS

These New Directors

WE are told that no little interest was aroused by our comment last month anent the possibilities of cinematographers as directors. Much of this interest fortunately has manifested itself in production quarters, where it lies within the hands of the powers that be to create new directors.

¶ And this is the age of new directors. The old order is passing when the first qualification of a director was a prolonged and previous experience in what was believed to be the similar capacity of stage director. The newer generation of American megaphone wielders emanates from the ranks of the studios themselves. These men have grown up professionally with the cinema, and have not been recruited from the legitimate. The lines of endeavor, which they pursued prior to their entry in films, have had little to do with theatricals. They have been, like Monta Bell, newspapermen; or like Mal St. Clair, they have served their apprenticeship on the studio set.

¶ The break for new directors began several seasons ago when Ernst Lubitsch was the first of several capable foreign artists to be brought to these shores. This importation is continuing, the chief desire of some of the studios apparently being to have as many more foreign directors than their production rivals as possible. We hold no brief for those who would condemn these European directors merely as a matter of patriotism. Nor, as we have remarked before, we had no sympathy for the misguided souls who tossed cabbages, over-ripe eggs and similar missiles at the premiere of the German film, "The Cabinet of Dr. Caligari," in Los Angeles several years ago. At the same time, we do not hold sympathy nor admiration for the type of motion picture executive whose better judgment is warped to the extent, when he requires new directorial blood, of following the now established path of getting any director just so long as he comes from beyond the Atlantic. Verily, things do change! The poison of 1921 is the meat of 1927.

¶ The fact remains that America makes the best motion pictures in the world. There have been many superlative photoplays made on the other side, but their ratio to those turned out in the United States would show the latter to be decidedly in the lead. If we make, as a general run, the best motion pictures in the world, surely our studios should rank as the best training ground of those who build screen efforts. Physical facilities here alone are conducive of a more thorough education of the "comers" in the profession.

¶ The time is coming, if it has not already arrived, when there will be or is such a drain on the supply of possible directors on the Continent that not a few other than first-raters will be engulfed in the eager domestic demand for directors of their kind. And this condition is imminent, or at hand, when so many potential directors are drawing salaries on the inside of studios today—as they have for many years previously!

¶ As we have observed in the past, we believe that the camera is one of the best media of education for those who aspire to be directors. While many cinematographers would never desert their pictorial posts, so closely are they wedded to their art, there are, at the same time, many who have the natural ambition to enter a field that is more lucrative, having long since reached "top" in their own corner of the industry. These men are able men—men with long years of brilliant experience behind them in the realm of the silent drama. They deserve their chance to direct now more than ever before.

¶ And let no producer say that he would not know where to look for them. He probably has his quota working in his own studio. We know of a dozen such men whom we could name off-hand!

Merit Rewarded

A PRECEDENT of five years' standing has been broken by the A.S.C. in the re-election of of a president. Daniel B. Clark is the first chief to be re-elected in five years. Only two times previously has such an honor been bestowed. In fact, the entire personnel of the officers and of the Board of Governors is practically identical with that of last year. But one new face appears among the entire fifteen on the Board. This, in some measure, indicates how highly the A.S.C. members at large regard the accomplishments of their officers during the past year.

¶ President Clark has proved a conscientious, hard worker with a liberal share of foresight and the necessary tenacity to put his plans and projects in operation. And the plans and projects of the A.S.C. during President Clark's administration have been of the most constructive sort—bringing good not only for the A.S.C. and its members, but for the industry as a whole.

Where Executives Train

THE Fox lot appears to be an ideal training ground for executives of motion picture organizations. President Clark of the A.S.C. is chief cinematographer for Tom Mix at Fox; John Ford, newly elected president of the Motion Picture Directors' Association, is a star director with the same studio. Every one of the present officers of the A.S.C., with the exception of Victor Milner, has been identified with Fox at one time or other, George Schneiderman, like Clark, being there now.

*I*n *C*amerafornia . . .

and News Notes of the Month

JOSEPH A. DUBRAY, A.S.C., has completed the filming of "A Beauty Shop," a Tiffany production, which Louis Gasnier directed. The cast included Mae Busch, Doris Hill, Nick Stuart, Ward Crane, Cissy Fitzgerald, Leo White and James Marcus.

Stephen S. Norton, A.S.C., has been associated with Dubray in the filming of Tiffany productions.

* * *

Harry Perry and Paul Perry, both A.S.C. members, are still working on the cinematographic intricacies involved in Paramount's "Wings," a story of the air service during the war.

* * *

Reginald Lyons, A.S.C., has returned to Hollywood from Grand Canyon, Arizona, where he went to film location scenes for a forthcoming Fox feature, starring Buck Jones. Scotty Dunlap directed.

* * *

Harry Fischbeck, A.S.C., has trekked to Hollywood with the Paramount Long Island studio forces, and henceforth will be located at the Paramount West Coast plant. His first picture is scheduled to be "The World at Her Feet," starring Florence Vidor and directed by Luther Reed.

* * *

Arthur Edeson, A.S.C., is on location at Camp Lewis, Washington, for the filming of war sequences for First National's "The Patent Leather Kid," starring Richard Barthelmess.

* * *

Victor Milner, A.S.C., is filming Paramount's "Rolled Stockings." Richard Rosson is directing. James Hall and Louise Brooks head the cast.

* * *

Georges Benoit, A.S.C., has finished shooting "Belgrano," a story of the fight for independence in Argentina. The film was photographed at the Tec-Art studios, Hollywood.

Nicholas Musuraca, A.S.C., was associated with Benoit in the filming of the feature. The cast included Francis X. Bushman, Jacqueline Logan and others of note.

* * *

Walter Lundin, A.S.C., is shooting the current Edward Everett Horton comedy at the Metropolitan studios.

* * *

Jackson J. Rose, A.S.C., is shooting "Eternal Silence," starring Hoot Gibson, at Universal. Ernest Laemmle is directing.

Ernest Palmer, A.S.C., was one of the guests of honor at a recent meeting of the "Wampas," an organization of the motion picture and theatrical publicity men in Hollywood and Los Angeles. Palmer attended as one of the principals on the staff of the Fox production, "Seventh Heaven," which Frank Borzage directed.

* * *

Charles Stumar, A.S.C., expects to be finished with the cinematography on Universal's "Uncle Tom's Cabin" within a month. More than a year has passed since the picture was started. Harry Pollard is directing the feature. On completion of the production, Stumar will be chief cinematographer on "Show Boat," based on Edna Ferber's novel. Pollard will direct.

* * *

John Seitz, A.S.C., is safe again in the balmy breezes of Southern California after a location trip amid mountain blizzards in Colorado for "The Trail of '98," which Clarence Brown is directing for M-G-M.

H. Lyman Broening, A.S.C., was among the cinematographers who went along to capture extra angles on the location.

* * *

John W. Boyle, A.S.C., has returned from Lake Tahoe, California, where he photographed snow sequences on United Artist's "Topsy and Eva," in which the Duncan sisters are starred. Del Lord is directing.

* * *

John Arnold, A.S.C., is filming "Wind," starring Lillian Gish, at the Metro-Goldwyn-Mayer studios.

* * *

Gilbert Warrenton, A.S.C., is filming "The Crimson Hour" at Universal. Edward Sloman is directing. Sloman and Warrenton went on an extensive location-hunting trip prior to the beginning of the picture.

* * *

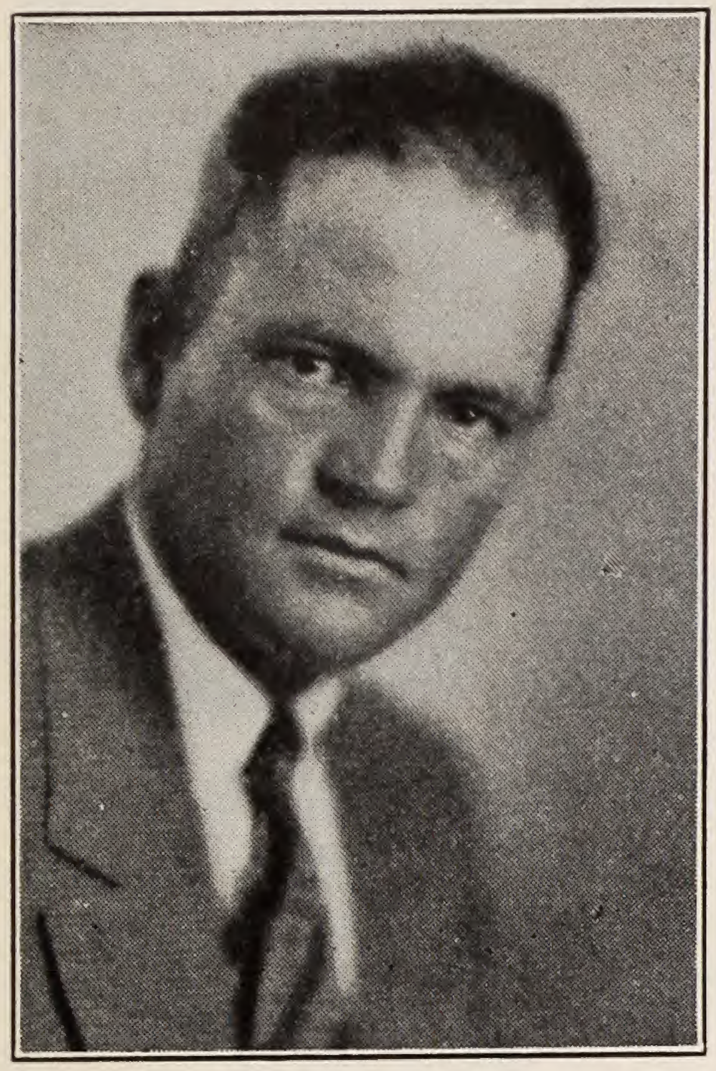
Robert Kurrle, A.S.C., has finished the filming of "The Tender Hour," a George Fitzmaurice production, at the First National studios, and will next photograph "The Stolen Bride," with Lloyd Hughes and Billie Dove. Alexander Korda is directing. Kurrle is being hailed for the artistry of his cinematography in Edwin Carewe's production of Tolstoy's "Resurrection," which stars Rod La Rocque and Dolores del Rio.

* * *

Ira H. Morgan, A.S.C., is photographing "The Callahans and the Murphys" at the Metro-Goldwyn studios. George Hill is directing.

A.S.C. Officers for 1927-28 Are Elected

Daniel B. Clark, Schneiderman and Charles G. Clarke Are Given Same Posts Again



Daniel B. Clark,
President.

John W. Boyle,
First Vice-President.

Victor Milner,
Second Vice-President.

DANIEL B. CLARK was re-elected president of the American Society of Cinematographers to head the activities of the A.S.C. during the 1927-28 fiscal year.

This is the first time in five years and the third occasion in the history of the Society that a president has been re-elected, the first two presidents of the A.S.C.—Philip E. Rosen and Fred W. Jackman—both having been chosen for a second term.

John W. Boyle was picked as first vice president; Victor Milner, as second vice president; and Frank B. Good, as third vice president. George Schneiderman and Charles G. Clarke respectively were re-elected as treasurer and secretary. All of the new officers, with the exception of Boyle and Milner, were officers during the past year.

Board of Governors

The A.S.C. officers were selected at the first meeting of the year of the new Board of Governors, which was designated by the members at large. The Board for 1927-28 amounts to a re-election of last year's Board, John W. Boyle being the only new member among the fifteen. The personnel of the Board is as follows: Daniel B. Clark, Victor Milner, George Schneiderman, Alfred Gilks, Charles G. Clarke, John F. Seitz, Ira H. Morgan, Floyd Jackman, John W. Boyle, Fred W. Jackman, Frank B. Good, King Gray, L. Guy Wilky, Georges Benoit and E. Burton Steene.

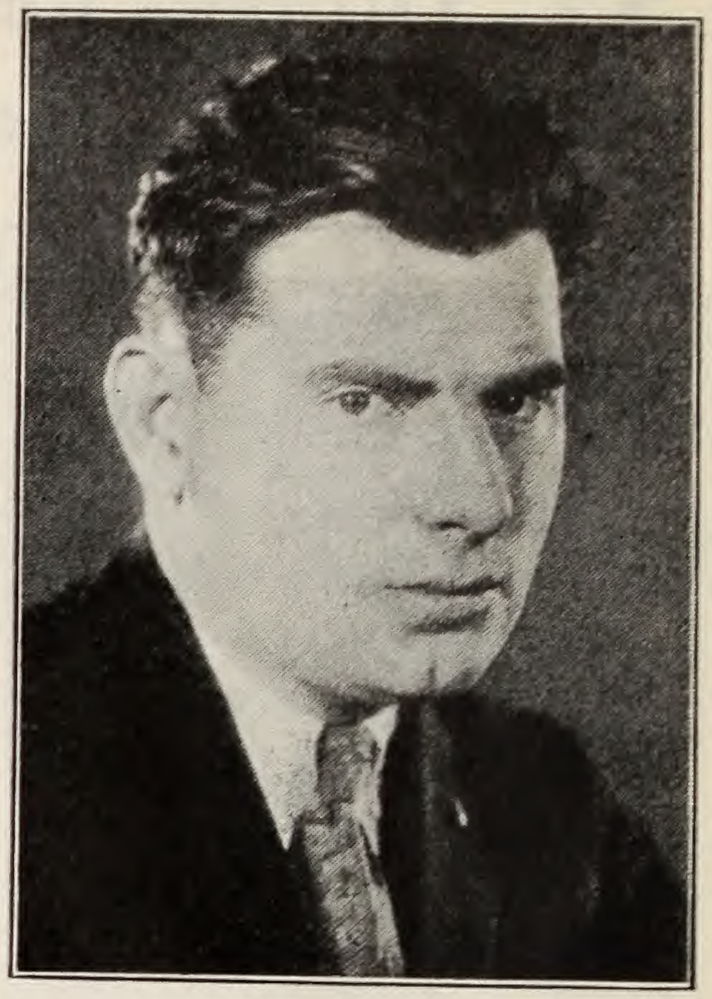
Clark, who continues as president, is chief cinematographer for William Fox productions starring Tom Mix. He has been identified with Mix during the length of his cinematographic career, having risen through various stages as still photographer, assistant and second cinematographer, until he eventually was awarded the first camera. Clark's cinematographic staff on the Mix pictures is one of the largest in the industry. He has served as chief cinematographer on all of Mix's pictures during the past several years, and during this time has not missed a day's work with the exception of a brief period last summer when he was kept from his duties for a brief period because of a minor surgical operation.

First Vice President

John W. Boyle, the first vice president, is one of the veterans of the camera calling. Although still young in years, Boyle entered the profession in the early era in New York City, having first become initiated in the mysteries of the motion picture camera in his home city, New Orleans. He was identified with the Fox studios in New York, and continued that connection on coming to Hollywood. He photographed many Theda Bara vehicles, as well as "The Queen of Sheba," and other contemporaneously important features for that producing organization. Since that time, he has served as chief cinematographer on innumerable big productions, for Goldwyn, F.B.O., Metro-Goldwyn-Mayer, First National and other studios. He was chief cinematographer on an expedition to the South Sea Islands, and was responsible for the photography in "The Isle of Vanishing

Geo. Schneiderman,
Treasurer.

Frank B. Good,
Third Vice-President.



Chas. G. Clarke,
Secretary.

Men," which caused a sensation in the trade several seasons ago. At Metro-Goldwyn-Mayer, he photographed "Wild Oranges," King Vidor's first outstanding film with M-G-M. Among his subjects at First National were "The Vienesse Medley" and "The Far Cry." At present he is chief cinematographer on "Topsy and Eva," a feature production for United Artists, starring the Duncan sisters. During 1925-26, Boyle was secretary of the A.S.C.

Second Vice President

Victor Milner, the second vice president, counts his cinematographic moons back to the pioneer days in New York also. His experience began in the camera establishment of Eberhard Schneider, an eminent figure in the first days of motion photography. Some of the screen's worthiest contributions have been filmed by Milner. They number, at various periods, Universal's "Human Hearts;" Fred Niblo's "Thy Name Is Woman" and "The Red Lily;" "Learning to Love," starring Constance Talmadge, and so on. For some time he has been under contract to Paramount Famous Lasky Corporation, for whom he has filmed, among other features, "East of Suez," starring Pola Negri; "The Spaniard" and "The Wanderer." He recently completed the initial Paramount production featuring Emil Jannings, the German star. Milner has officiated in various A.S.C. offices in the past. He is one of the fifteen original members of the Society.

Third Vice President

Frank B. Good, third vice president, came to the profession during the days of glory of D. W. Griffith at the old Fine Arts Studios, Hollywood. This was the era of the making of "The Birth of the Nation," "Intolerance," and other productions which made and maintained the reputation of Griffith. Good has presided at the camera on the occasion of the elementary ventures of many players now noted in the screen world. After his connection with the Griffith forces, he joined Fox, where he filmed the Tom Mix features which were setting up Mix's reputation as the premiere Western performer. He preceded Dan Clark with Mix; Good also photographed many Buck Jones vehicles. For the past several years, Good has been known as chief cinematographer of Jackie Coogan productions, having been the guiding hand of the youthful star in all his appearances. Like Milner, Good has given service to the A.S.C. in many capacities.

Treasurer

George Schneiderman, re-elected as treasurer, was among the first cinematographers of Fox productions. Besides his camera duties, he was for many years in charge of the Fox laboratories. He has photographed some of the most successful Fox productions which have been made in California. They include "The Iron Horse," "The Johnstown Flood," "Thank You," "Three Bad Men," and many others. He recently concluded "Is Zat So?", featuring George O'Brien and Edmund Lowe.

Secretary

Charles G. Clarke, re-elected secretary, is the youngest of the officers, but is a veteran in the quantity and quality of pictures which he has turned out. They number many Paramount features directed by George Melford—"Salomy Jane," "The Light That Failed," "Tiger Love" and others. At the Metropolitan studios he was chief cinematographer on "Without Mercy," "Simon the Jester" and "Rocking Moon." For some time past he has been freelancing at Fox, F.B.O., Paramount and other studios. He shot "One Minute to Play," which marked Red Grange's bow as a film actor, and at present is at work on "The Motor Manic" with the same star.

Asks Exhibitors to Criticize Cinematography

A. S. C. President Asks Theater Owners to Watch Efforts of Cinematographers

Requests Constructive Criticism from Theater Staff on Motion Photography

(The following story was written by the editor of this publication for the Studio Section of Exhibitors Herald.)

An invitation to the army of exhibitors, whose contributions make up the department, "What the Picture Did for Me," in the *Exhibitors Herald,* to appraise and criticise the cinematography in productions, which they show at their theaters, is extended by Daniel B. Clark, re-elected president of the American Society of Cinematographers.

Practical and Artistic

"The A.S.C. is interested," Clark states, "not only in raising the artistic standards of motion pictures, but is also decidedly interested in giving exhibitors that type of cinematography which most pleases their patrons. By doing this, we believe that we are satisfying the public's inherent desire for true works of art and, in addition, we are at the same time working for a boon that concerns the exhibitor and those in Hollywood the most—namely, the box-office. The members of the American Society of Cinematographers want to make practical pictures as well as beautiful pictures. I don't think that there is any question that the efficient cinematographer is the means of saving his producer hundreds of dollars by the proper handling of cinematographic apparatus and methods in the production of a given picture. Being money saved, this is money that is made. Even though the connection may be more remote, we are just as interested in making the exhibitor money.

Constructive Criticism Invited

"Hence," the A.S.C. president continued, "we invite constructive criticism from exhibitors concerning our cinematography. It is difficult for us to keep our fingers on the pulse of the public throughout the country. The exhibitor feels that pulse every day in the year. And no doubt that pulse has its cinematographic throbs as well as its reactions to acting, direction and story merit. We want to know just how this pulse beats, and the exhibitor can tell us. With the exhibitor appraising the cinematography and passing on word to us as to how our work can be improved from the theater's and the patron's viewpoint, we will have a definite and practical course charted, along which we can direct our efforts for progress in cinematography. Need I add that we members of the A.S.C. realize that the progress of the industry generally largely rests within our hands, and consequently we aim to improve our product as much as we possibly can on every picture which we photograph.

Direct Communication

"We would be glad," Clark invites, "to have any exhibitor's views or reviews on our efforts sent to us at our headquarters in Hollywood. We appreciate that what a theater owner may have in the way of suggestion in some instances could not be embodied in the reports in 'What the Picture Did for Me,' where brevity is the keynote. Therefore, we would welcome such communications from exhibitors, and I assure you that they will be given every possible bit of attention."

Walter Griffin, A.S.C., is filming "Rose of the Bowery," a David Hartford production, at the Fine Arts Studio.

* * *

E. B. Du Par, A.S.C., is back in Hollywood from Yuma, Arizona, where he filmed scenes for a Warner Bros. production starring Rin-Tin-Tin. The cast includes Virginia Brown Faire, Jason Robards, Tom Santschi and Theodore Lorch. Raymond Enright directed. Du Par was in Arizona during the rainy siege in Southern California, and, during this period, experienced only one day of rain. The rain farther north came to the company's pictorial rescue, however, as the water flowing over the Colorado River dam at Yuma increased from a few inches to five feet within a week's time; the dam is a mile wide.

Du Par will photograph the next Warner feature starring Syd Chaplin. Chuck Reisner will direct. Helene Costello and Clara Horton will be included in the cast.

* * *

Charles Van Enger, A.S.C., has completed the cinematography in "Diamonds in the Rough," a First National production starring Milton Sills. Charles Brabin directed.

* * *

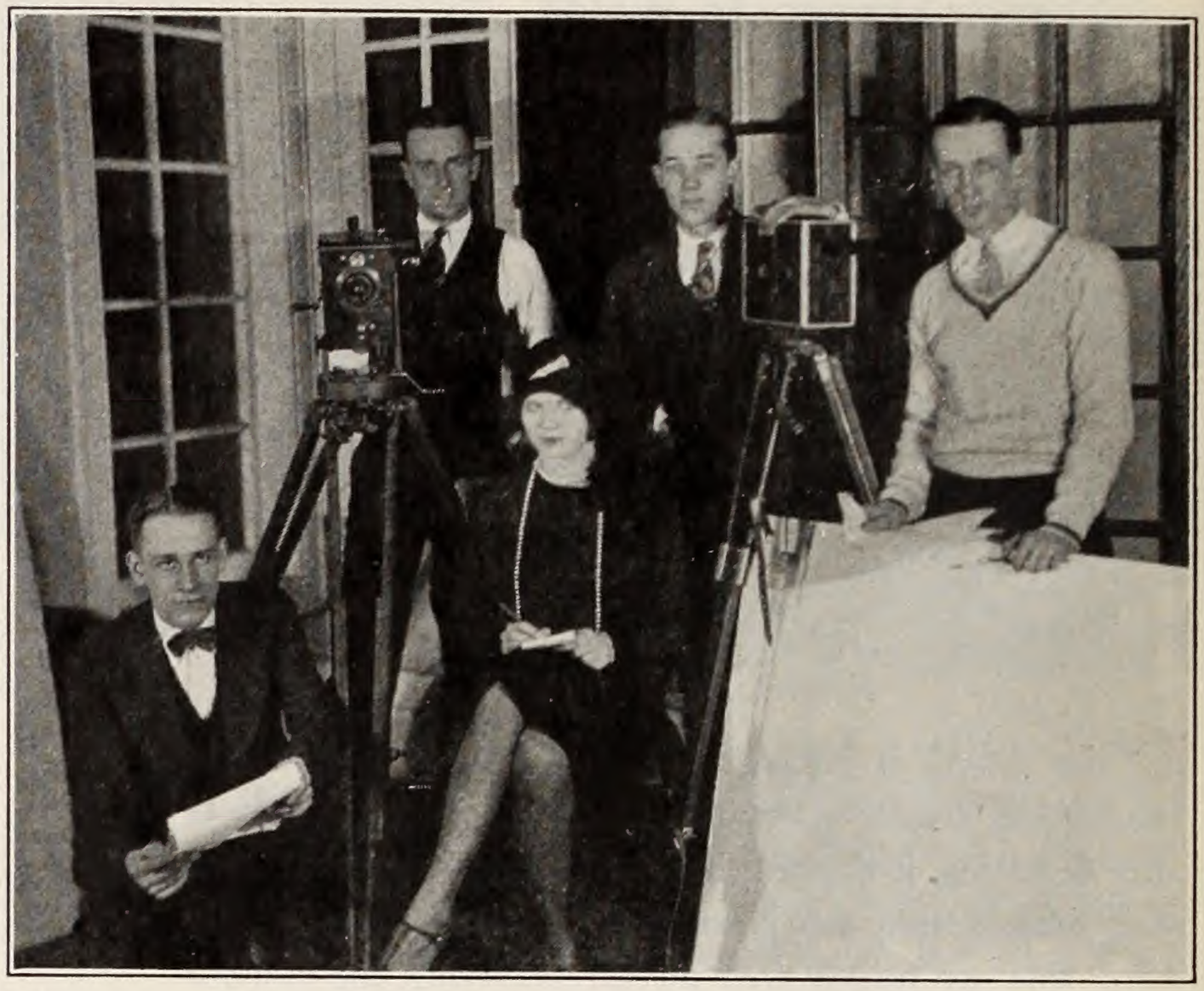
George Scheibe, manufacturer of filters for the photographic trade, has removed to a new location at 1927 West Seventy-eighth street, Los Angeles. The new location is near St. Andrews place. Scheibe will have enlarged quarters and an experimental laboratory on the premises.

* * *

Charles G. Clarke, A.S.C., is finishing shooting "The Motor Maniac," starring Red Grange. Sam Wood is directing from Byron Morgan's story.

Amateur Cinematography

Motion Picture Club of the Oranges



Production Committee of Motion Picture Club of the Oranges.

(The following account from Russell T. Ervin, Jr., of South Orange, N. J., describes the activities of the Motion Picture Club of the Oranges, of which Mr. Ervin is a member.)

THE writer is an amateur cinematographer and takes much interest in the articles which have appeared in your paper under both the amateur and professional heads. I thought your amateur department might be interested in knowing what we are doing in our local club, Motion Picture Club of the Oranges (N. J.).

Awaken Interest

This club was formed in 1925 and we believe it is the pioneer in the field. After about a year's work a three-reel photoplay was produced on 16 mm. film. Last summer we decided that it would be best to make our pictures on standard film as the interest aroused by the first picture seemed to warrant making a picture which could be exhibited in local theaters.

I have been taking pictures on standard film for about thirteen years merely as a hobby and as a consequence I have been shooting all our later work.

Members Are Amateurs

The membership comprises young men and women who are interested in producing photoplays on a purely amateur basis and receives only financial assistance from its members, so you can realize we all have a job on our hands making pictures on standard film. Every duty connected with producing a picture excepting laboratory work, is performed by various members of the club—story, scenario, continuity, photography, lighting, make-up, properties, location, publicity, editing and other duties which must be attended to.

New Production

We are at present working on our two-reel picture, "Hey-Hay!" All the interiors have been shot and most of the exteriors, and the results we consider quite good. Interiors were taken using two 20 ampere twin arcs as 40 amps was the maximum current which could be drawn. One of these lights was designed and built by the writer. I have a Debrie Interview camera with 2, 3 and 6-inch lenses and Bell & Howell tripod. We are using Du Pont superspeed film on all interiors for this picture and the results were much better than I expected with the limited light available. Mr. Eugene Ragsdale, who is also one of your readers, has made a thorough study of make-up and from the results we have obtained we think he does his work very well. Mr. Ragsdale photographed the first picture the club produced on 16 mm. film. The writer has charge of most of the technical work in connection with the present picture.

The Motion Picture Club feels quite proud of the fact that we were the only amateurs who had any film in the recent showing of "Thirty Years of Motion Pictures" which was assembled by the National Board of Review and shown in Carnegie Hall, New York City, on February 28th, 1927. These pictures were those interiors which we shot early in February.

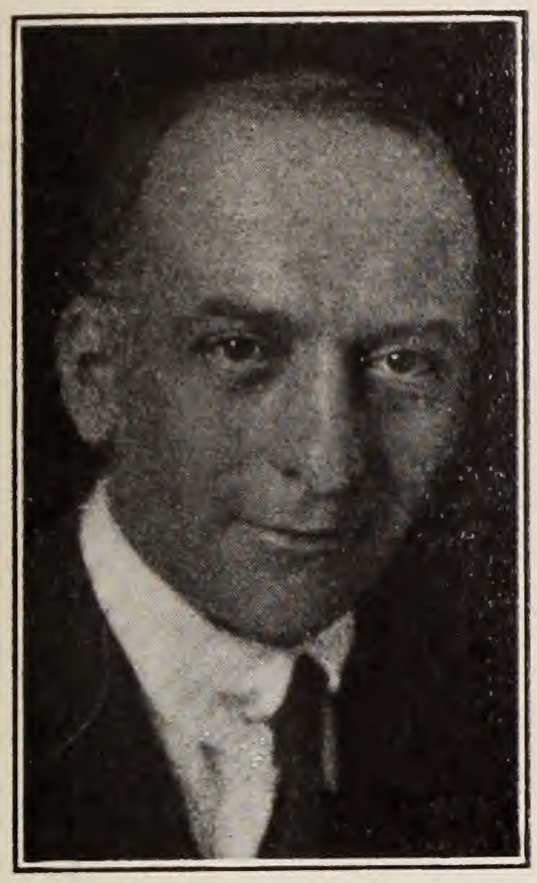
Our picture will probably be completed for exhibition by April 15th and I hope we will be able to arrange some way in which those interested in seeing what amateur photoplay makers can produce, may be able to view a print of it outside the local theaters.

A Professional's Notes for Amateurs

Part VI

By Jos. A. Dubray, A. S. C.

Discoveries of della Porta and Others in Primitive Photographic Research Related



Jos. A. Dubray

In the preceding chapters we have dealt with the phenomena provoked by *light* traveling in different media.

The expressed *theories* or *laws,* accepted or proven to be true, bring to us an understanding of the possibilities that man has at his disposal for harnessing *light,* so to speak, for setting it to work, for his benefit and convenience, and thus take advantage of the unlimited opportunities offered to him.

We shall, from now on, depart from generalities and enter the practical field of the adaptation of these phenomena, to the *art of photography.*

For the sake of clearness and for a better understanding of the modern, almost perfect optical apparatus and instruments, used in photography, we will briefly retrace the steps of time, and follow the work of scientists and artisans and consider the results obtained by their combined efforts, in the field that is of interest to us.

The Image

LET us state at first that *photography entirely depends upon the formation of real images.*

An image is the representation of a person, object or thing, and the most perfect image is, geometrically speaking, the one that corresponds point by point with the object or person, as viewed by the eye. In other words, every point of the *object space* must have its corresponding point in the *image space.*

Images may be *real* or *virtual* and the easiest definition of the difference between them may be stated thus: Images are real when they can be collected on a screen (as the image formed by a photographic lens) and virtual when they cannot be collected on a screen (as the images formed by plane mirrors).

Della Porta

ON a certain sunny day of the year 1553, the Italian, Gianbattista della Porta, an officer of fortune, a philosopher, a scholar and a keen observer, was lying on a camp-bed in his tent resting from the fatigues of soldiering, when his attention was attracted by an interesting sight.

On one of the walls of the tent he could distinctly perceive a small and inverted image of the landscape without, as well as the movements of men and animals, which were wandering in proximity and at a distance from the tent.

This image he remarked to be a perfect rendering of the scene on the outside, with all its coloring, its perspective and its maze of details.

The air was perhaps charged with dust particles, and the discoverer was able to perceive a cone of *rays of light, apparently* emerging from the image on the wall, and converging to a small opening, a tiny tear perhaps, that was in the canvas of the tent, in the wall opposite to the one that flourished the image.

On covering the small opening, the image would disappear, but instantly reappear as soon as the opening was kept clear from obstruction.

The prototype of photographic cameras was thus discovered.

Truly, the phenomena had been remarked and described by the great Leonardo da Vinci, more than fifty years previously, but it remained for Porta to find an application for it, and to name *camera obscura* (dark chamber) the simple apparatus that he conceived and constructed. It was a mere box, with a small round opening drilled in one of its walls, and a translucent screen, perhaps a piece of canvas, in place of the opposite wall.

It was in this manner rendered easy for anyone even ignorant of the art of design, to *draw* a faithful reproduction of any landscape or object presented to the camera.

Formation of Image

THE principle of the formation of an image in the camera obscura, is as follows:

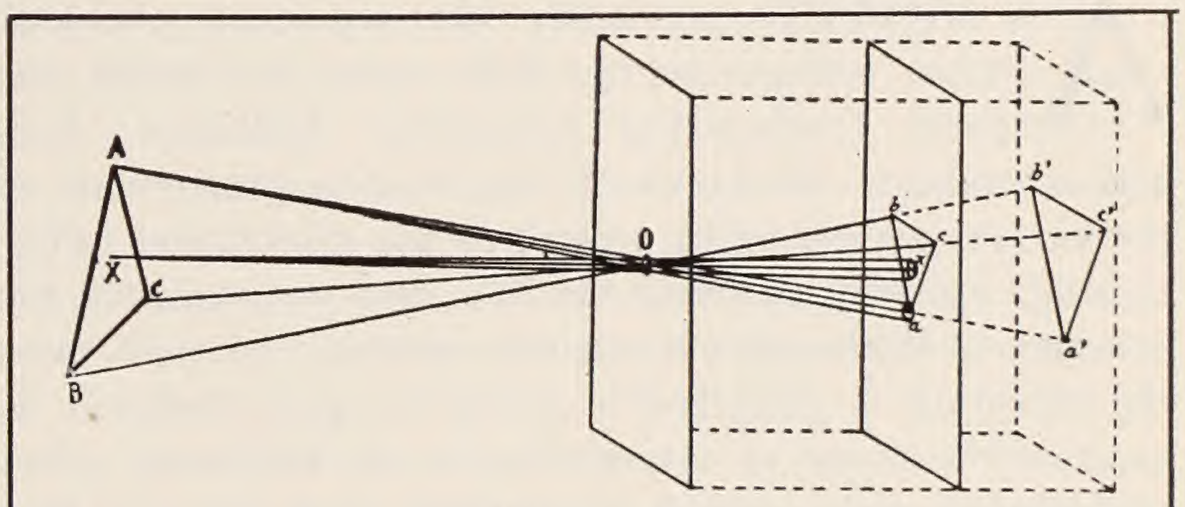


Figure 15

Suppose ABC to be an object presented to a camera obscura, of which O is the pinhole orifice.

Each one of the extreme points, A, B and C, can be considered as a source of disturbance, emitting rays of light in all directions.

The particular ray emitted by the point A, and passing through the pinhole, will be intercepted by the screen, and form *da,* another source of disturbance, similar to the original source A. Similarly the rays emitted by the object points B and C, will create sources of disturbance at *b* and *c*. Now if we consider the object ABC, as formed by a conglomeration of points, it is easily understood that each one of these points will emit a

(Continued on Page 19)

Panchromatic Motion Picture Film Negative

Third Number in Series Founded on Communications from Eastman Research Laboratories.

By Loyd A. Jones and J. I. Crabtree

Continue Discussion of Details Concerning Standard Illumination Sources in Studio Work.

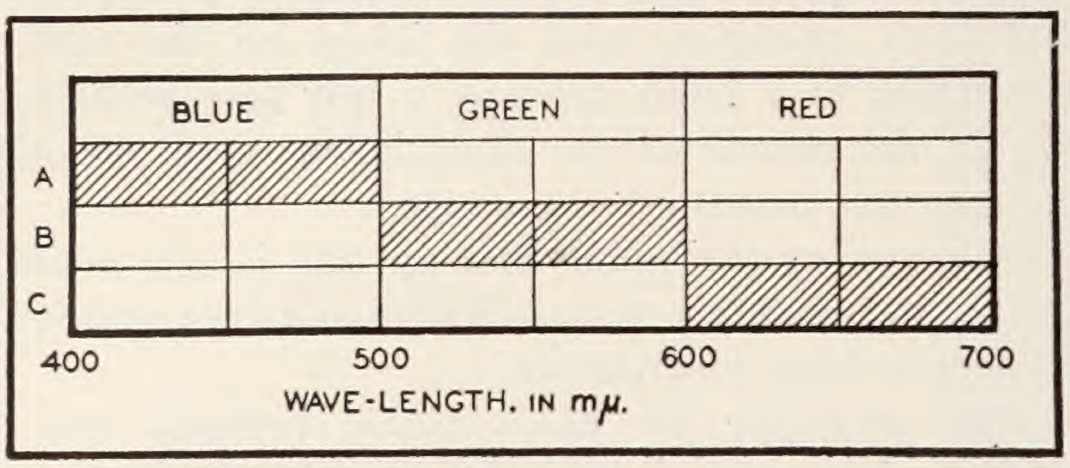


Figure 13

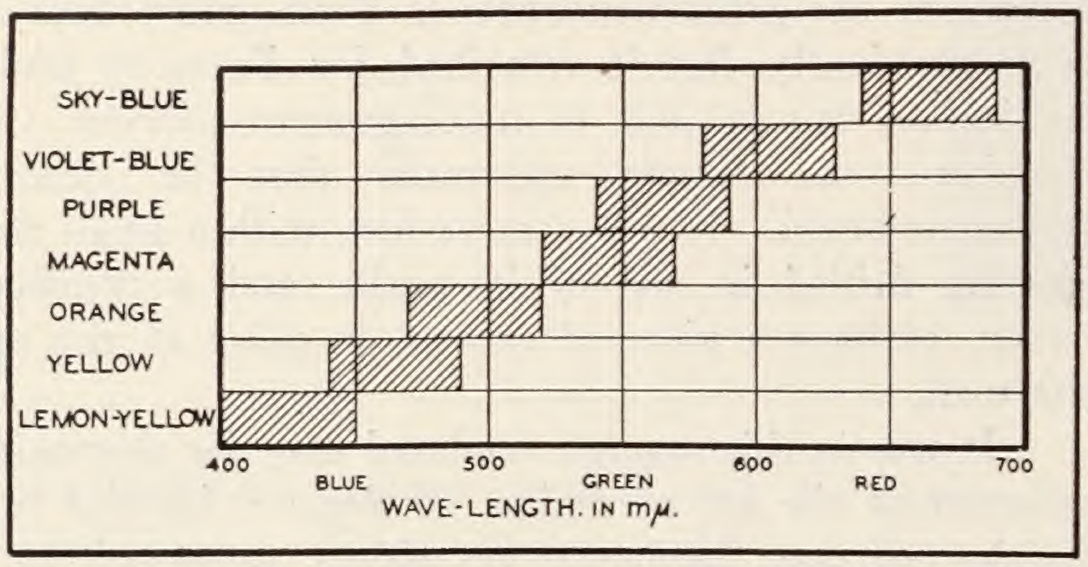


Figure 14

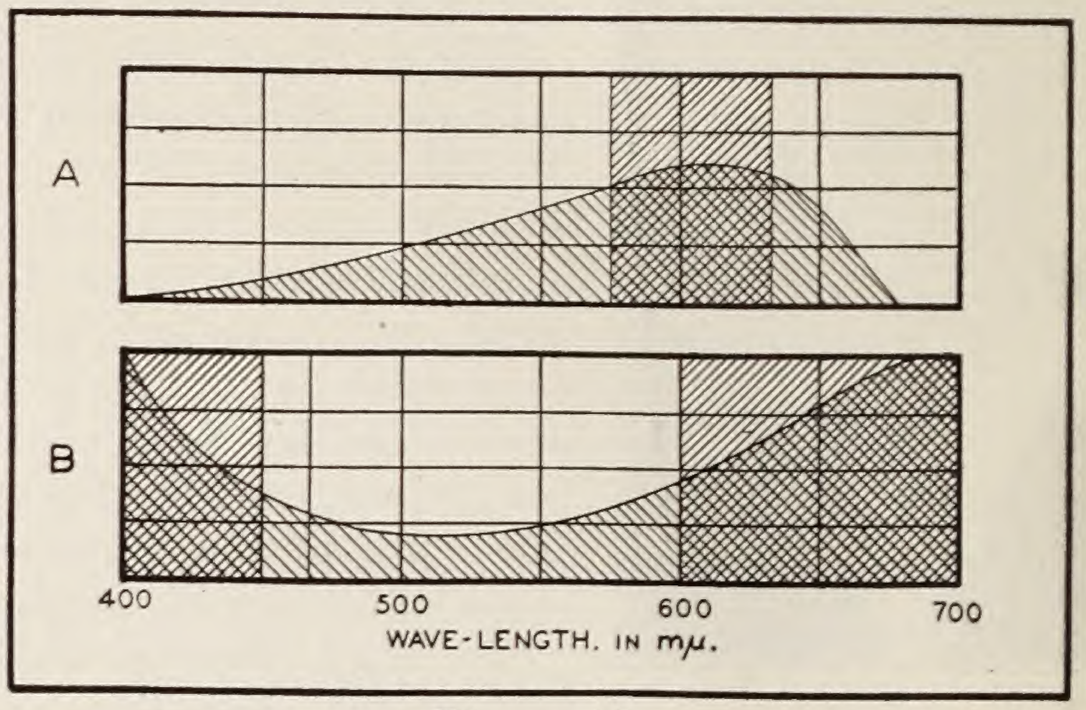


Figure 15

(Continued from last month.)

The Nature of Color

AS STATED previously the sensation produced when radiant energy falls upon the retina has three fundamental attributes: brilliance, hue, and saturation. If, however, the relative proportions of the various wave-lengths present in the stimulating radiation are properly adjusted the hue, and consequently the saturation, attributes are entirely absent. In such cases the sensation is described as *white* or gray and can be expressed in terms of a single factor, its brilliance. Any radiation of such spectral composition as to give rise to a hueless sensation is spoken of as *white light*. While it is difficult to define precisely and absolutely a standard of white light it has been found experimentally that the radiation received at the earth's surface at noon on a clear day approximates closely the required spectral composition. For all practical purposes noon sunlight may therefore be adopted as a standard of white light.

Brilliance being an attribute of sensation can be expressed quantitatively only in terms of some sensation unit. The capacity of the stimulus, that is radiant energy, to produce the brilliance factor of sensation is denoted by its *luminous intensity* or *brightness*. These are physical quantities measurable by purely physical methods and expressible in definite physical units. In the case of reflecting surfaces brightness is the physical characteristic of interest in tone reproduction problems since it is the only factor which is reproducible by the photographic process. From the photographic standpoint therefore the perfection with which brightness distribution of the object photographed is reproduced in the print or screen image is a measure of the quality of reproduction.

Gray Sensation

The *gray* sensation differs from white only in the brilliance factor. The entire series of colors designated as grays (of which black and white are the limiting members) are due to spectral compositions of radiation capable of exciting hueless sensations. Any radiation differing in spectral composition from that required to produce a hueless sensation gives rise to a sensation which has a definite hue and which exhibits saturation in increasing magnitude as the difference between the spectral composition of the radiation and that of gray increases. Radiation of such wave-length as to excite sensation of which the hue is red, we speak of as red light, or it is called a green light if the hue be green, etc. Thus the hue or color is spoken of in common terminology as if it were an attribute of the radiation itself.

Non-luminous Objects

Non-luminous objects are visible by virtue of the radiation which they transmit or reflect. In case an object transmits or reflects all wave-lengths of visible radiations in equal proportions the spectral composition of the radiation which reaches the eye is precisely the same as that which illuminates the object. Such objects

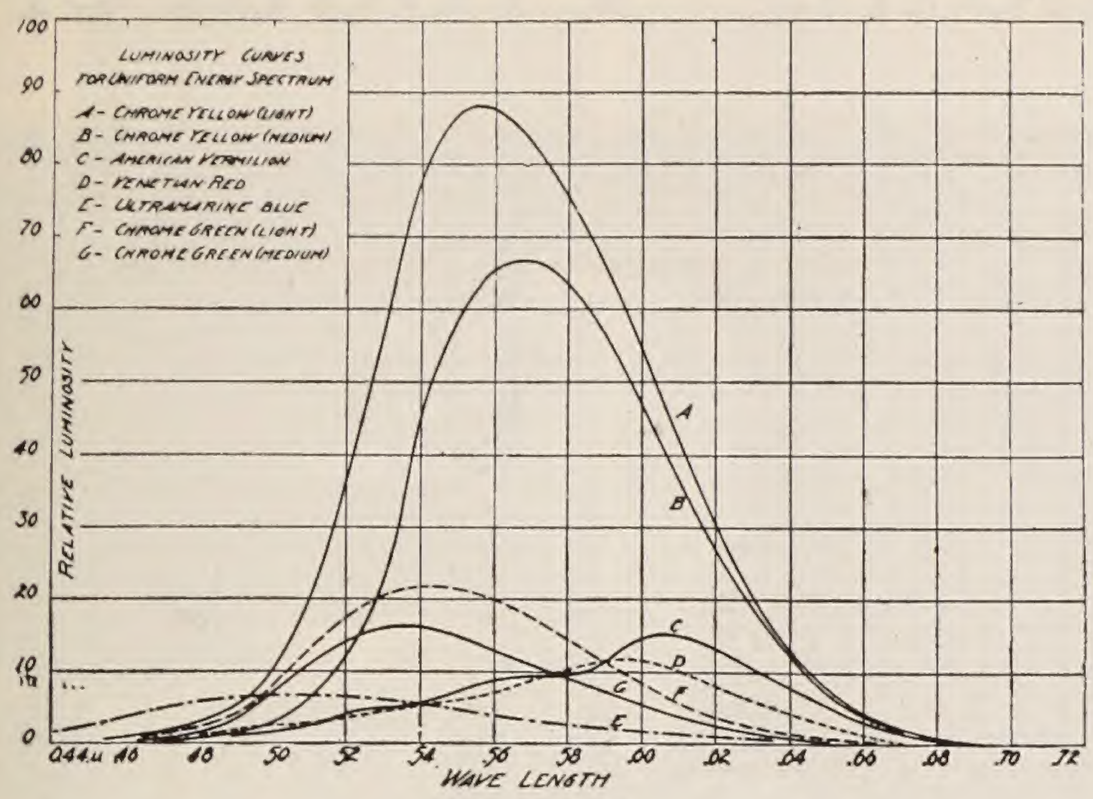


Figure 16

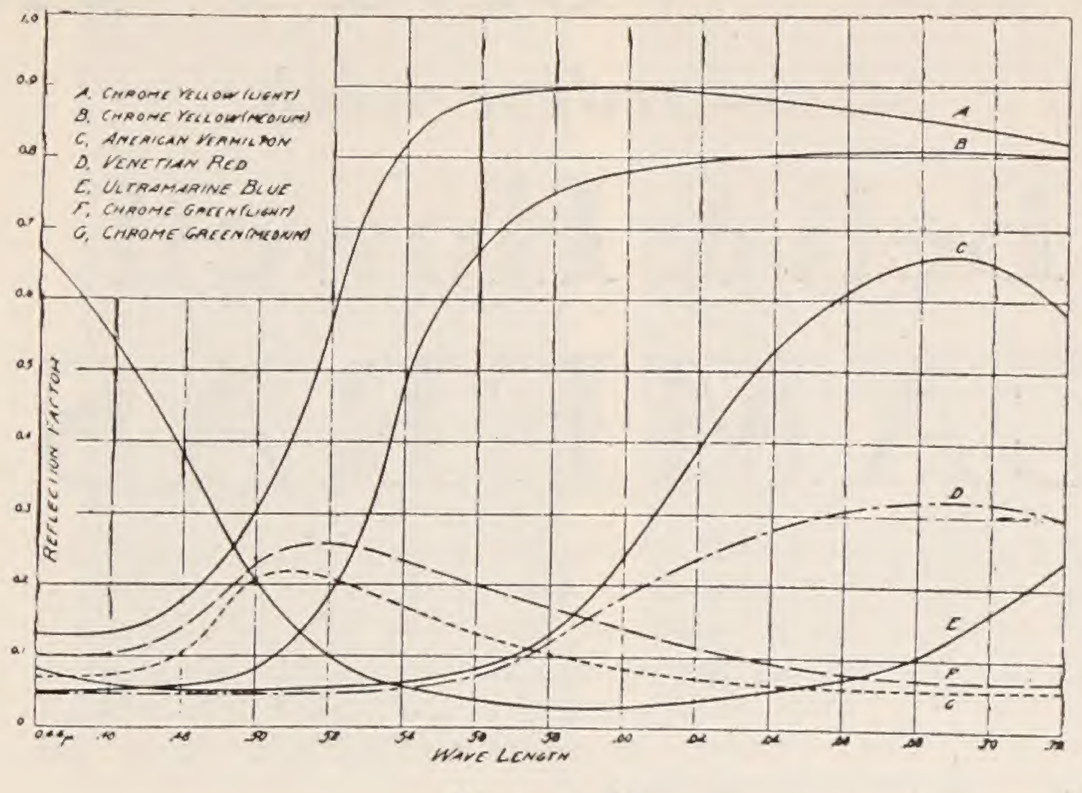


Figure 17

are said to be gray, black, or white depending upon the extent to which they reflect or absorb the incident radiation. The terms *non-selective* and *neutral* are also frequently used in referring to the reflecting or absorbing characteristics of such objects indicating that they absorb to equal extents all visible incident radiation regardless of wave-length. Objects which absorb some wave-lengths to a greater extent than others are referred to as *selective* absorbers. Radiation which has been reflected by such objects differs in spectral composition from that which was incident thereon. If the radiation incident on such an object is of such quality as to excite a hueless sensation (that is white) that which is reflected is so modified by *selective absorption* that it now excites a sensation having hue. Therefore we see an object possessing hue and consequently saturation. Hence we call it a colored object. Color in non-luminous objects is due therefore to *selective absorption*.

Two Objects

A gray object illuminated by colored light appears to be colored, while a colored object illuminated by colored light may appear either gray or of a different color. It is evident therefore that the color which an object appears to have at any time depends on two factors, its absorbing characteristics and the spectral composition of the light with which it is illuminated.

Keeping in mind now that the color which an object exhibits is due to its spectral absorbing characteristics, let us consider briefly the colors produced by various types of absorption. This subject is treated at length in "The Photography of Colored Objects," by Dr. C. E. K. Mees. To this reference should be made for more complete information on the subject.

In Fig. 13 is shown a diagram in which the upper section represents the visible spectrum. This is divided into three equal portions representing approximately the three primary colors: red, green, and blue, the divisional points being indicated by the wave-length scale at the bottom of the figure. It is assumed that this spectrum represents that of white light, for instance light from the noon-day sun. In the spectrum designated as *A* absorption of blue is indicated by the shaded area. The remaining light consists of red and green which added together give a yellow color. Thus the absorption of blue results in yellow. Complementary colors are defined as those which when added together result in white. It is evident therefore that blue and yellow are complementary to *each other*. Since the absorption of blue results in yellow the converse must be true that the absorption of yellow, that is the red and green components of white light, will result in blue. In the spectrum designated as *B* green has been absorbed. The remaining radiation consists of red and blue which when mixed together produce magenta. This brings to our attention for the first time a group of colors which are not present in the spectrum. They are commonly referred to as the purples and consist of mixtures, in various proportions, of red and blue. In the spectrum designated as C at the bottom of the diagram the shaded area indicates that red has been absorbed. The remaining light is blue-green in color and conversely it follows that if blue and green are absorbed the residual will be red. The absorption bands shown in Fig. 13 are relatively wide, each one including one-third of the visible spectrum. The colors produced by such absorption are of high saturation. Narrow absorption bands produce colors of lower saturation as illustrated in Fig. 14. In this figure a relatively narrow absorption band is indicated by the shaded area. This is moved into different positions in the spectrum, the residual color remaining after the absorption of the narrow band being indicated by the color names at the side of the diagram.

Dyes and Pigments

All of the illustrations given thus far are based on the assumption that certain wave-lengths of radiation are absorbed completely as indicated by the vertical boundaries of the various absorption bands. This is only an ideal condition and is never encountered in the case of pigments and dyes with which we have to deal in practical work. The diagram in Fig. 15 illustrates the type of spectral absorption met with in the case of dyes and pigments. In *A* the narrow sharply defined shaded area lying between wave-lengths 570 and 620 mu repre-

(Continued on Page 15)

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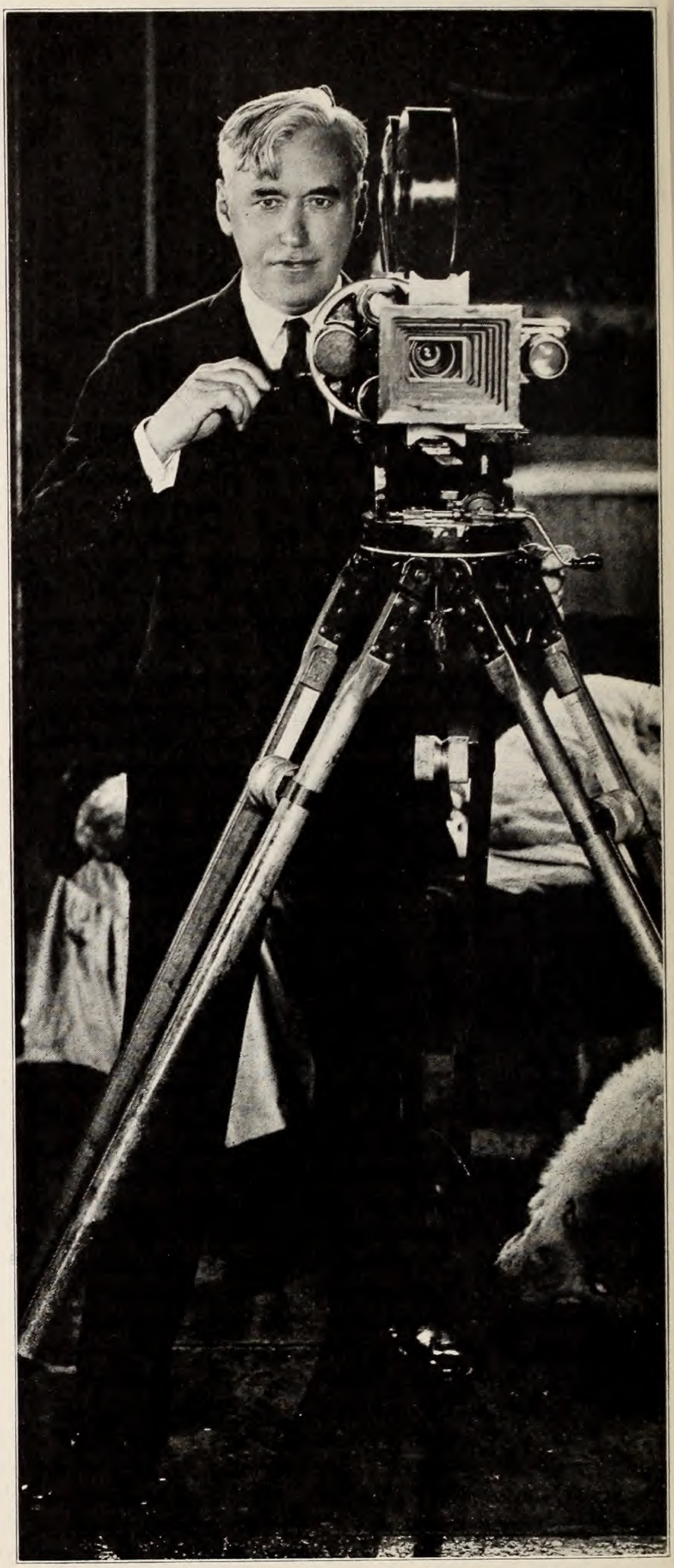

MACK SENNETT

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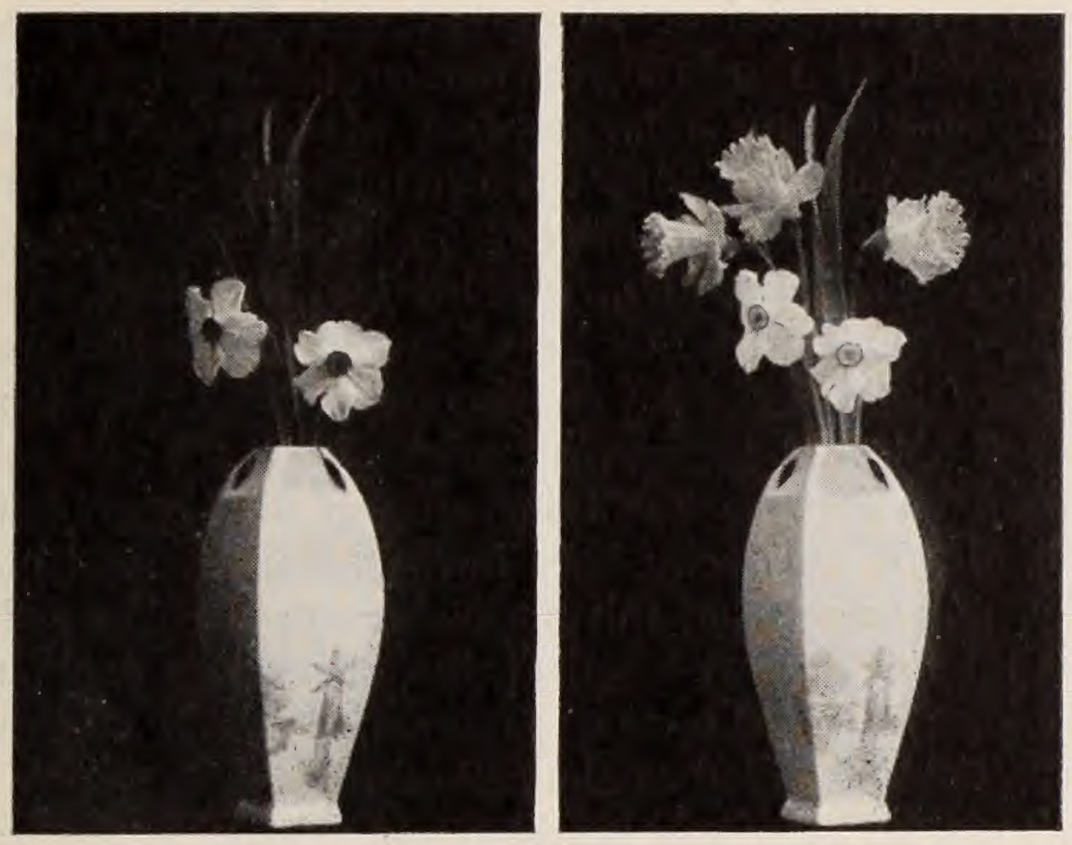

Figure 18

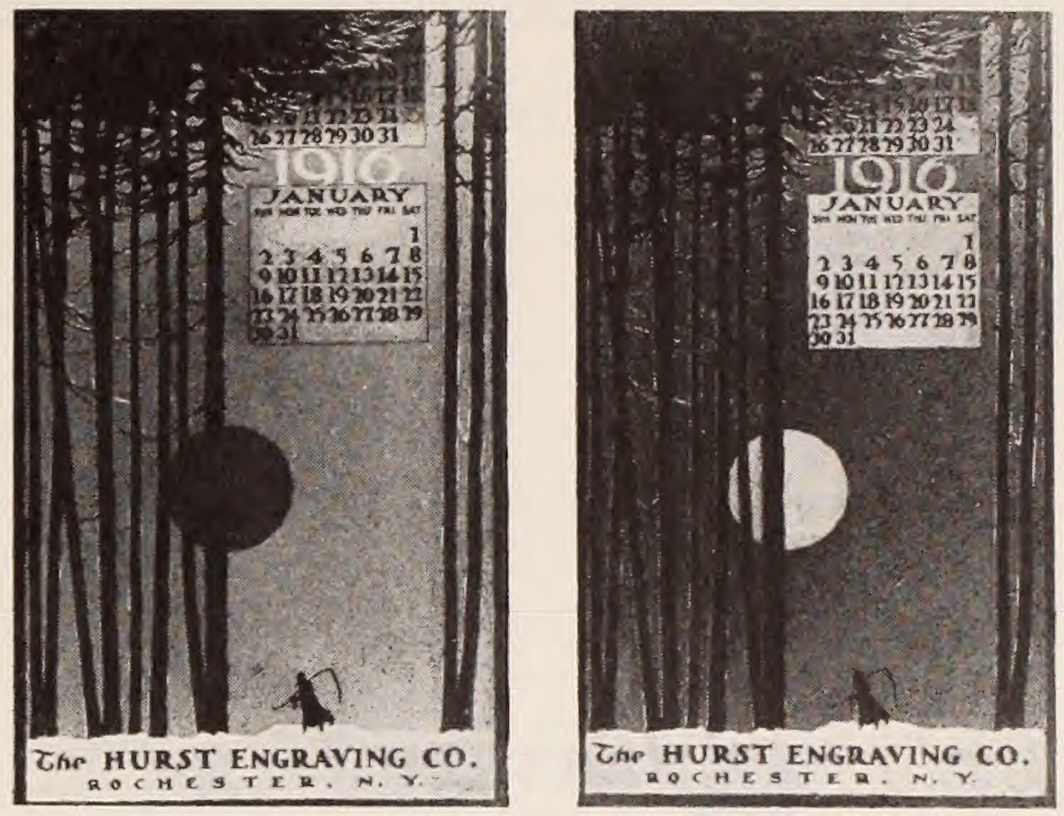

Figure 19

sents a theoretical absorption band which produces a violet color. As a matter of fact violet can be produced in this way by inserting an opaque absorbing material in a spectrum formed by dispersion of white light. Recombinations of the unabsorbed portions of the spectrum then result in light of violet color. Dyes and pigments, however, do not exhibit such sharp absorption characteristics. The shaded portion under the curve in diagram *A,* Fig. 15, represents the spectral absorption of a violet dye. It will be noted that it has a maximum absorption at approximately 600 mu decreasing rather sharply on the long wave-length side to zero at approximately 700 and decreasing more gradually on the short wave-length side to zero at approximately 400 mu. In diagram *B* the difference between a spectrum and pigment green is shown. The spectral absorption of the pigment green which is designated by the shaded area under the curve shows two maxima, one at the red end of the visible spectrum and the other at the violet with a minimum of absorption at approximately 550 mu. Practically all pigments and dyes have absorption characteristics of the general type illustrated by the curves in Fig. 15, although in some cases the absorption may be somewhat sharper than shown. Quantitative data relative to the spectral absorption characteristics of colored materials are usually given in graphic form by plotting absorption or reflection as a function of wave-lengths. In Figs. 16 and 17 are given a group of curves showing the spectral reflection characteristics of a few typical pigments. These are taken from a publication by M. Luckiesh[5] who also gives a large amount of data relative to other colored materials such as dyes, inks, etc.

An inspection of the curves in Figs. 16 and 17 reveals some facts of interest. The materials represented by these curves may be taken as representative in a general way of the coloring materials available for producing color in paints, fabrics, wall paper, etc. It will be noted that the curves for the red, orange, and yellow pigments have relatively very high reflection factors in the spectral region which they reflect most copiously. While the greens, blue-greens, and blues, even for those wave-lengths which they reflect to the greatest extent, have relatively low reflection factors. Even if the eye were of equal sensitivity to all wave-lengths of radiation red, orange, and yellow pigment would in general be much brighter visually than the green, blue-greens, and violets. When it is remembered that the maximum of visibility lies at 556 mu and that the visibility for longer and especially for shorter wave-lengths decreases very rapidly, it is evident that we should expect the reds and yellows to be colors of much greater brilliance in general than those in the shorter wave-length region of the spectrum. By multiplying the ordinates of the visibility curve by those of the spectral reflection curve for any given pigment a curve is obtained designated as the *luminosity* curve of the pigment. The area enclosed by this curve indicates the relative brightness of the pigment when illuminated by white light. Likewise the ordinates of the spectral sensitivity for the photographic material when multiplied by the ordinates of the spectral reflection curve give a curve known as the *photicity* curve. The area enclosed by this is proportional to what we may term the *photographic brightness* of the color considered. Applying this method of analysis to the various colored materials represented by the curves in the last two figures it is evident that colors of the green-blue-violet class will be relatively very bright as seen by a photographic material of ordinary type, while the colors of the red-orange-yellow group will have relatively low photographic brightness. This relation being the reverse of the visual brightness of these colors explains the enormous distortion of tone values obtained when photographing colored objects on ordinary blue-sensitive film. If now we substitute panchromatic film it is apparent at once that the red-orange-yellow colors will be photographically relatively brighter than when rendered on ordinary film.

The spectral reflection characteristics of the colors which predominate in motion picture work has an important bearing on the effective or practical speed of the photographic film used.

In measuring the speed of photographic materials by sensitometric methods it is customary to expose them to

5. Luckiesh, M.

white light, in which approximately the same amount of energy is radiated at all wave-lengths. On this basis the speed of panchromatic motion picture negative is approximately the same as that of Superspeed orthochromatic negative film. A careful study of the color of materials used in interiors, including such things as wall papers, draperies, upholstering, furniture, wood trim, costumes, rugs, etc., shows that the so-called warm colors (those having a hue lying on the long wave-length side of 550 mu) very greatly predominate, the cold colors (those having the hue lying on the short wave-length side of 550 mu) being used in much smaller total quantity. Assuming that this preponderance of colors reflecting the longer wave-lengths exists, there is no doubt that the panchromatic motion picture negative is effectively appreciably faster than the orthochromatic.

Thus far very little has been said relating to the transmitting type. These are of considerable importance since they provide a means whereby certain portions of the radiation reflected by the objects being photographed may be selectively absorbed. This may be accomplished of course by placing the colored glass or gelatine in front of the lens of the camera or between the light source and object illuminated. Colored glass in wide variety is available for the use in the studio. This class of materials has been described at some length by Dr. Gage[6] in these Transactions, wedge spectograms being given which show the selective absorption characteristics of a large number of samples. Colored filters made by incorporating dyes in gelatine are particularly adapted to photographic purposes. Due to the large number of dyes available a much greater range in types of selective absorption can be obtained in this way than it is possible to manufacture in the form of glass. A very complete line of filters of this type are commercially available and are described in detail in "Wratten Light Filters." In this booklet spectral absorption curves are given for approximately one hundred different absorbing filters suitable for use in various fields of photographic work.

To deal completely with the subject of using light filters with panchromatic film under all possible conditions of light source, object, and desired result would in itself constitute a lengthy discussion. This subject has been treated exhaustively in the book mentioned previously, "The Photography of Colored Objects," and for further information the reader is referred thereto.

Rendition of Colored Objects by Orthochromatic and Panchromatic Film

FROM a consideration of the spectral sensitivity of orthochromatic and panchromatic film, the spectral reflection curves of various colored objects, and the distribution of energy in the radiation emitted by light sources it is evident that a marked difference in the photographic rendition of variously colored objects should be obtained. A few actual examples of such differences will now be given. In Fig. 18 are reproduced two photographs of a white vase on which is a design in blue. The flowers are two varieties of narcissus, the upper ones being bright yellow and the lower having

6. Gage, H. P. Colored Glasses for Stage Illumination. Trans. S. M. P. E. No. 18, 1924, p. 37.

Figure 20

white outer petals with a yellow central cup. The reproduction on the orthochromatic plate renders the yellow as very dark, only slightly lighter than the black background. The superior rendition of visual brightness is obvious in the reproduction on the panchromatic material, the yellow being rendered almost as bright as the white, thus corresponding to the visual impression.

In Fig. 19 are shown two reproductions of a poster. The sky in the original is dark blue, while the moon is represented by a bright orange disc. It will be noted that the orthochromatic material renders the moon as much darker than the sky background, this being the inverse of the visual relationship. On panchromatic film the brightness ratio between sky and moon is reversed and corresponds with the visual ratio.

In Fig. 20 is shown a photograph of a painting. The dress is a brilliant scarlet while the background is very dark. The orthochromatic material reproduces this so that the scarlet dress, which is visually many times brighter than the black background, is just perceptibly lighter than the background. In case of the reproduction on panchromatic material the brightness ratio is as it should be, the scarlet dress being rendered as an area of much higher brightness than the black background. Illustrations of the improvement in tone reproduction by use of panchromatic material could be multiplied indefinitely. These three, however, serve as sufficient illustration.

Uses of Panchromatic Film

THE application of panchromatic motion picture film to practical problems may for convenience be classified in two main divisions: (a) to obtain correct reproduction of the visual brightnesses in a scene containing variously colored objects and (b) to obtain desired distortion of brightness in a scene consisting of variously colored objects.

Correct Reproduction

The first of these purposes may be referred to as the *normal* usage of such film. The curves showing the relation between sensitivity and wave-length for this material indicate that it is sensitive to all wave-lengths of visible radiation. There is, however, an appreciable preponder-

ance of sensitivity to radiations of shorter wave-length. The required spectral distribution of sensitivity in a photographic material in order to obtain *under all conditions* precise reproduction of visual brightness is that the curve of spectral sensitivity of the material shall be identical in shape with that of the visibility curve of the eye. A comparison of the visibility curve with that of spectral sensitivity of panchromatic film shows that there is still an appreciable discrepancy. By placing over the lens a filter which absorbs radiation selectively it is possible to modify the *effective spectral sensitivity* of the photographic material. Thus by using a yellow filter which absorbs radiation of shorter wave-lengths the *effective* sensitivity of the film at those wave-lengths can be reduced. If the spectral absorption characteristic of this filter is properly adjusted to that of the photographic material the spectral sensitivity can be made for all practical purposes identical with the visibility function of the eye. It is obvious that the absorbing characteristics of the filter which is used for this purpose will depend directly upon the spectral distribution of energy in the radiation of the light source used for illuminating the object. When panchromatic motion picture negative is used outdoors, the object being illuminated by sun and sky light, it is necessary to use a yellow filter such as the W. & W. No. 8 (K-2) in order to obtain correct reproduction of visual tone values. When this material is used in the studio with such sources as the high intensity, sun arc, or white flame arc, the same filter is approximately correct. A set illuminated by light from the ordinary hard cored carbon arc, operating at a color temperature of approximately 4000°, requires a slightly lighter yellow, filter K-1½ being approximately correct. If high efficiency tungsten lamps are used no filter is required. The relatively small quantity of short wave radiation and the relatively large quantity of long wave radiation compensates approximately for the excess of blue and violet sensitivity.

The use of a photographic material which will give correct reproduction of visual brightness values has many advantages. Under such conditions the distribution of the tone values (brightness) in the set is seen by the scenic artist, cinematographer, director, and the actors themselves just as it will be reproduced on the screen. There is little doubt that this is of great value since it enables those responsible for the composition of the picture to judge more precisely when the various elements of light and shade bear the proper relation to each other. Flesh tones and quality are rendered as seen by the eye. Problems of make-up very largely vanish when panchromatic film is used. It is only necessary to instruct the actors to make up as they wish to be seen. There seems to be little doubt that this simplification of the make-up problem is of considerable *value*. Both cinematographer and director should be able to detect any faulty or objectionable make-up much more readily than under conditions which exist at present where the make-up must necessarily be incorrect visually in order to produce a pleasing result on the screen. The rendition of flesh color by the non-color sensitive material is notoriously

(Continued on Page 24)

Amateur Cinematography

(Continued from Page 11)

certain ray of light that will pass through the pinhole, and the whole *image space, abc,* will become a conglomeration of sources of disturbance, which, by the law of propagation of light, will produce the phenomena of vision when striking the eye. An image of ABC is then formed at *abc,* and by viewing the figure we can readily see that this image is *inverted* and *real.*

Each point of the object will have a corresponding point in the image, and this geometrical similarity is called *collinearity of object and image spaces.*

Diffraction

AT first thought, it seems that we would be justified in concluding that the rendering of the image should be perfect, if the orifice is of such small size as to admit only *one* of the rays of light emitted by each one of the points forming the objects, but facts prove that such is not the case.

Firstly, the amplitude of *one ray* of light is a non-measurable entity, resulting to the physical impossibility of drilling an opening of such size.

Secondly, experimentations have proved that, although the image increases in sharpness by reducing the size of the opening, a certain point is found, which marks *a maximum of sharpness,* which cannot be surpassed. In fact, by reducing further the size of the opening, a lack of sharpness sets again in the image and a limit of smallness would be found at which no image would be visible.

This is due to phenomena of *diffraction* that take place when light passes through small orifices or narrow slits in the same manner as when it is partially intercepted by a sharp edge, as we have mentioned in the preceding chapter.

Such being the case, it is evident that as the orifice of the camera obscura is larger than the size of a single ray of light, more than one of the rays emitted by the point A, for instance, of Fig. 15, will enter the pinhole, and the image of such a point will be an area whose surface is limited by the size and shape of the orifice.

It is evident that to each point of the object space there corresponds an idea in the image space, so that the image is formed by a conglomeration of such areas instead of a conglomeration of points. It is also evident that the size of these areas controls the *definition* or *sharpness* of the image.

The shape of the opening has no influence whatever on the formation of the image, but as it is customary to consider a round opening, the image area of one object point is called the *circle,* or *disc of confusion.*

Now, if we consider again Fig. 15, it will appear clearly to us that the rays emitted by the point X of the object will form at *x* a disc of confusion perfectly circular (providing that the opening O is a circle) while the rays emitted by the point A will form in the image space a circle of confusion of eliptical form and we will therefore find a greater sharpness in the center of the image space than at its outside boundary.

The human eye is still able to distinguish at a distance of one foot, two separate points, 0.004 inches apart. If the two points are nearer to each other, they blend into one.

This limit of visibility determines an extreme maximum of sharpness that it is useless to surpass in an image that is to be viewed with the naked eye. In fact this extreme degree of sharpness is seldom sought nor obtained.

Scale of Magnification

LET us suppose now that we hold the object and the pinhole stationary but we move the screen so as to place it in a position further away from the orifice. Suppose the position illustrated by dotted lines in Fig. 15.

We can readily see that the size of the object remaining unchanged, *the size of the image varies,* and the new image *a'b'c'* is *greater* than the size of the former image *abc*.

Furthermore, if we keep pinhole and screen stationary and we move the object, the size of its image will *increase* if the object is approached to the pinhole, and will *decrease* if the object is set further away from it.

There is then a certain geometrical relation between the *distance of the object* and the *distance of the screen* from the pinhole.

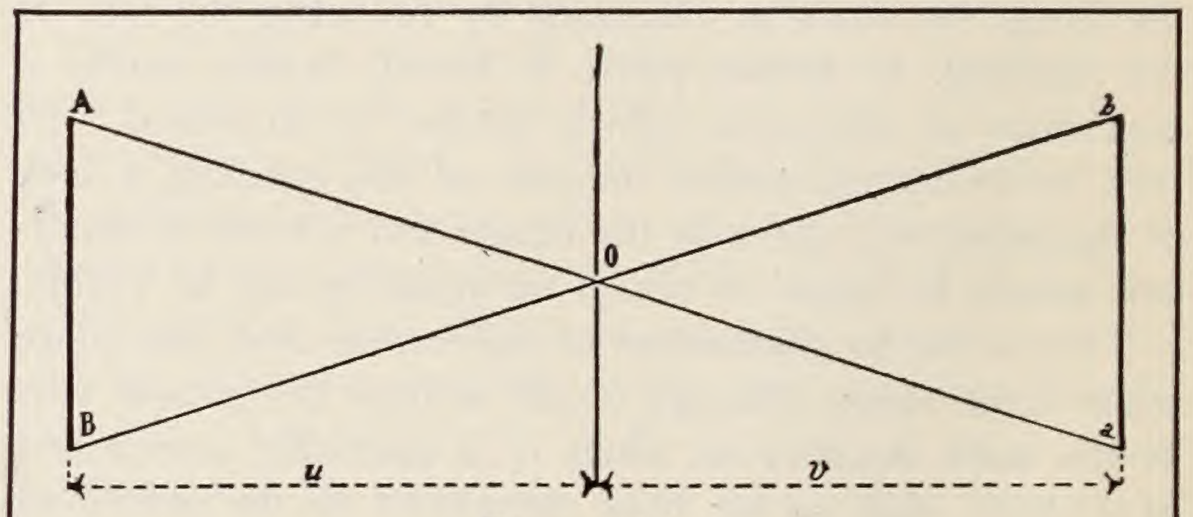

Figure 16

Supposing AB to be the object, *ab* to be the image, O the pinhole, *u* the distance from the object to the pinhole and *v* the distance from the pinhole to the image, we have the equation:

$$\frac{AB}{ab} \text{ equals } \frac{u}{v}$$

This ratio is the *scale of magnification* of the image, and we can easily conclude that the image will be of the same size of the object, if object and image are at the same distance from the pinhole and that the size of the image is inversely porportional to the distance of the object from the pinhole.

The distances *u* and *v* determine thus the ratio of magnification, and have no bearing on the sharpness of the image. It results from this that in a pinhole camera, objects placed at any distance from it, always give a sharp image, within the limits of the circle of confusion.

Thus, the image of a landscape given by such a camera will present the extreme foreground as sharp as the extreme background and t hrough the constant ratio A divided by B equals *c* divided by *b* the proportions of the size of close-by and far-away objects in the object

and image spaces will render a perfect perspective of the landscape.

In other words, a pinhole camera will form an image presenting the following features:

I. *Exact similarity* of object and image;
II. *Depth of field;*
III. *Sufficient definition or sharpness all over the image space.*

This complete rendering of an image by an optical instrument is called *orthoscopy.*

The lack of orthoscopy in an image is called *distortion.*

DAGUERRE

FROM what we have stated above, it results that the pinhole camera is the *ideal orthoscopic* camera, and would be the ideal photographic camera, if the admission of light through the pinhole opening would be sufficient to permit a rapid exposure on the sensitive emulsion of plate or film.

Unfortunately, the disc of confusion's size required to obtain a sufficiently sharp image is so minute that a very small amount of the light emitted by the object enters the camera, and a very prolonged exposure is needed to obtain the photographic results desired.

This deficiency of illumination was felt even by Porta, in his applications of the "camera obscura" either for exhibition, or for reproduction purposes, and, in the course of his experiments, he also discovered that the pinhole could be considerably enlarged, providing that *a converging lens was placed at the orifice itself.*

He found thus that he could enormously increase the admission of light into the camera, and produce an image not *orthoscopic,* but with sufficient definition to serve its purpose.

Porta's fame grew by leaps and bounds, and it is said that upon his return to his native town Naples, his home was constantly besieged by friends and admirers who would wonder over the marvelous pictures on the wall.

It was only too natural for the human mind, the production of images once discovered, to attempt to *fix* these images in some mechanical way, but it was only over three hundred years later, in 1814, that the Frenchman Niepce obtained a *permanent* image on a plate of glass coated with bitumen, and in 1839 another Frenchman, *Daguerre,* discovered the way of fixing the image on a silver plate upon which a coating of silver iodide was former.

Daguerrotypes, the name given to such pictures, in honor of the inventor, are still in existence today, and it is quite often that one may have the opportunity of admiring the delicacy of these images that have so wonderfully withstood the action of *time.*

By Daguerre's invention, the "camera obscura" ceased to be a *toy* and became an *instrument,* and we all know the remarkable strides made during the past century by the new *art* of *photography,* as an *art* and as an *industry.*

(To be continued next month.)

PROJECTION-Conducted by Earl J. Denison

True Film House Is Yet to Come

By Daniel B. Clark, A.S.C.

President of A.S.C. Suggests Originality in Construction of Theatres

THE writer has another bone to pick with motion picture theatre architects. But first let him say that he has the utmost respect for the men who have designed the beautiful buildings which have displaced the nickelodeons of fifteen years ago. He believes that some of the edifices, which they have laid out, rank as architectural masterpieces which even other types of public buildings might be patterned after.

Because he has respect for the theatre architects, he believes that he is not prejudiced in offering them, in good faith, a couple more suggestions.

Example

By way of example, let us point to the practices of the early automobile manufacturers. Truly, they were making horseless carriages—a carriage with a motor in it, instead of a horse for motivation. For many years, an automobile was nothing more than an animated buggy. Then, the designers of bodies must have awakened to the fact that they were not merely dealing with a new kind of carriage, but that they were doing business with an entirely new creation. So automobiles began to have an appearance of their own, and were something more than imitation shays.

Influence of Legitimate

Now to get back to film theatres: It has appeared to the writer that many of our costly cinema houses have been fashioned in such a way to be in reality a legitimate theatre with the addition of a screen and a projection system—thus making it a "movie" palace. The other night the writer had this supposition again substantiated when he went to view a performance of Metro-Goldwyn-Mayer's "Tell It to the Marines." It so happened that the production was being presented in a neighborhood theatre which, on the first exhibition since the downtown run at top prices, was playing to a capacity house. The result was that the available seats were in the second row on the left side of the lower floor. Once seated, our first impression was that Lon Chaney wasn't out of make-up, as had been announced, and was not appearing in "straight" character after all—for his face was never more distorted and elongated than he appeared that night on the screen before us. We knew, of course, that it was not a matter of photography, and, moreover, we had been reliably informed that Ira Morgan, a fellow member of the A.S.C., had done some of his best work in this production. When we were beginning to suspect the projection, the first show ended, enabling us to get seats in the center of the house. When the feature was screened again, the projection and the presentation in general were perfect.

Periscope Needed

The whole trouble, of course, was the unbelievable angle of those front seats on the side of the house. Why an architect or a theatre owner should place seats in such a section of the house is beyond reason, and this is said with full knowledge of the fact that the thing is being done all the time. People, let us note again, go to the picture theatre to be entertained and for relaxation. They certainly don't get what they paid for when they have to strain their eyes to view a lot of grotesque, unhuman figures on the screen.

Legitimate Imitated

Now the reason that those seats were placed in that particular theatre was because seats had been in a similar location in every theater which the architect and owner had ever seen. Theatres always had had seats there! Naturally—and the precedent of the whole thing is the type of structure used for the legitimate theatre where, even though the seats were at an awkward angle, that part of the audience which drew them could hear very well; in addition, they were looking at people in flesh instead of moving photographs thrown on a flat screen.

Chance to Be Original

Some day, an architectural genius is going to come along, forget that such a thing as a speaking theatre ever existed, and design a real motion picture house. It will be a theatre which will aid projection rather than hinder it. It will be a theatre where projection will have the right of way and won't be challenged to do everything possible short of turning corners.

As we remarked once before, theatres should be built around the projection system—not projection around the theatres!

Protective Glass to Prevent 'Kleig Eyes'

A new "Kleig eye" preventive is being introduced in Hollywood in the form of Goerz's "Sinuval" which is being marketed by the Fish-Schurman Corporation.

This method employs a glass which is placed over the lights used in the studios for photographing, thereby going directly to the source of the eye maladies which have been perennial since artificial illumination was introduced in picture making.

S. M. P. E. Holds Spring Meeting in Norfolk, Virginia

The spring meeting of the Society of Motion Picture Engineers will be held at the Monticello Hotel, Norfolk, Virginia, April 25th to 28th.

Herford Tynes Cowling, A.S.C., will act as delegate of the American Society of Cinematographers at the meeting.

The meeting's preliminary program, subject to change, was announced as follows:

Monday, April 25

9:30—Registration.

10:30—Presidential Address by W. B. Cook, Kodascope Libraries, Inc., New York, N. Y. New Business. Report of Arrangements, Publications, Papers, Publicity and Advertising, and Membership Committees. "Report of Progress in the Motion Picture Industry" by Carl E. Egeler, National Lamp Works, Cleveland, Ohio. "Hollywood and the Motion Picture Engineers" by K. C. D. Hickman, Research Laboratory, Eastman Kodak Company.

1:00—Luncheon.

2:00—Papers: "Radio Movies and the Theatre" by C. F. Jenkins. "Some Technical Aspects of the Vitaphone" by J. B. Harlow, Development Manager, Western Electric Co. "The Conservation Program of the Motion Picture Producers and Distributors of America" by Hickman Price, Motion Picture Producers and Distributors of America, Inc., New York, N. Y. "Motion Photomicrography with a Cine-Kodak" by C. F. Tuttle, Research Laboratory, Eastman Kodak Company.

7:00—Get-Together Dinner.

8:00—Motion Picture Entertainment in the Banquet Hall. Ladies and friends are cordially invited. "To the Roof of the World in Thibet" by H. T. Cowling, Eastman Kodak Company. "The Scientific Motion Picture" by L. F. Goldman, Carpenter-Goldman Labs., New York, N. Y. Cards and dancing afterward.

Tuesday, April 26

9:30—Papers: "Some Facts about Projection Lenses" by W. B. Rayton, Director of Research, Bausch & Lomb Optical Co., Rochester, N. Y. Report of Standards and Nomenclature Committee. "An Improved Type of Arc Illumination and Condenser System for Motion Picture Projection" by L. M. Townsend, Supervisor of Projection, Eastman Theatre, Rochester, N. Y. "Effect Lighting in Theatres" by J. H. Kurlander, Brenkert Light Projection Co., Detroit, Mich. "A New Light Source for Mazda Projection Lamps" by H. I. Wood, National Lamp Works, Cleveland, Ohio.

1:00—Luncheon.

2:00—Automobile trip to Virginia Beach for Oyster Roast at the Cavalier Hotel. Golf, swimming, etc. Dancing afterward.

Wednesday, April 27

9:30—Papers: "The Mercury Arc" by F. Benford, General Electric Co., Schenectady, N. Y. "The Physiological Effect of Radiations from Various Light Sources" by M. J. Dorcas, National Carbon Co., Cleveland, Ohio. "Why is Make-Up Compulsory in the Movies?" by V. A. Stewart, Fox Film Corp., New York, N. Y. "Illusions in Cinematography" by F. Waller, Famous Players Lasky Corp., Long Island City, N. Y. "Trick Photography Patents" by E. J. Wall.

1:00—Luncheon.

2:00—Papers: "A Film Developing Process for ..coustic Records" by Dr. Engl. " Progress in Color Cinematography" by F. E. Ives. "Some Faults Demanding Attention" by F. H. Richardson, Moving Picture World, New York, N. Y. "The Use and Care of Motion Picture Film in Exploration Photography" by H. T. Cowling, Eastman Kodak Company. "Air Conditioning in Laboratories and Theatres" by D. C. Lindsay, Carrier Engineering Co., Newark, N. J.

7:00—Banquet. Motion Pictures and Vitaphone entertainment. Dancing afterward.

Thursday, April 28

9:30—Papers: "The Tungsten Lamp Situation in the Studio" by P. Mole, Creco Corp., Hollywood, Calif. "The Use of Filters with Panchromatic Film" by L. A. Jones, Research Laboratory, Eastman Kodak Co. "Trick Photography" by J. A. Ball, Technicolor Corp., Hollywood, Calif. (a) "A Pneumatic Film Squeegee"; (b) "Film Cleaning Liquids" by J. I. Crabtree, Research Laboratory, Eastman Kodak Company. "The Importance of Research Work to the Producer" by Leigh M. Griffith, Famous Players Lasky Corp., Hollywood, Calif. "A New Camera Pull-Down Mechanism" by George A. Mitchell, Mitchell Camera Co., Hollywood, Calif. "A Shutter Dissolving Mechanism" by D. L. Mistry, Bombay, India. "Examination of Film by Projection on a Continuous Processing Machine" by W. V. D. Kelley, Kelley Color Films, Inc., Hollywood, Calif.

(Continued from Page 18)

bad. Normal skin being a tissue filled more or less with blood vessels has a yellow or red dominant hue which on orthochromatic film at present used necessarily renders much darker on the tone scale than it appears visually. Lips in particular render as almost black. The sensitivity of the panchromatic material to the wave-lengths of radiation reflected by flesh entirely eliminates this trouble. Skin imperfections such as freckles, enlarged blood vessels, etc., are practically invisible when panchromatic film is used. The rendition of various types of hair on panchromatic film is much more satisfactory. For instance, auburn hair which visually is of high brightness, is rendered on ordinary film as very dark. On panchromatic film this assumes its true position on the visual tone scale. Yellow hair also renders much too dark on orthochromatic film but on panchromatic is correctly reproduced.

(To be continued next month.)

Panchromatic Stock Is Added to Company's Line

Dupont-Pathe is introducing panchromatic film as a part of their line this month, according to J. Wesley Smith, of Smith and Aller, Inc., Pacific Coast distributors of Dupont-Pathe Film Manufacturing Company.

This addition to the Dupont-Pathe line has been anticipated for some time, and its sponsors state that indications point to its immediate success among Hollywood studios.

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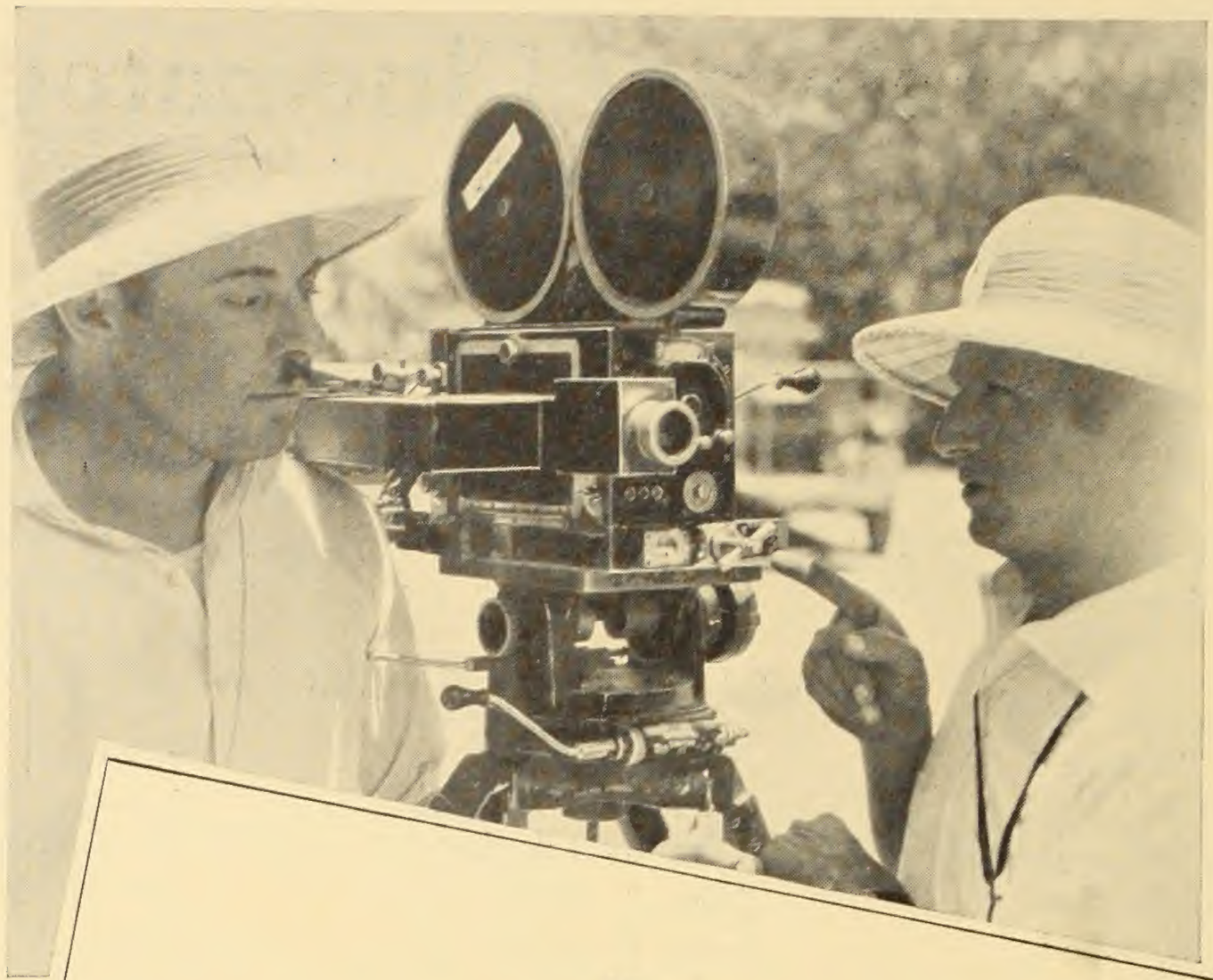

Albert Rogell

Los Angeles, California,
October 20, 1926.

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Sincerely,

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